

THE YOUNGSTOWN SHEET AND TUBE COMPANY

East Chicago, Indiana

June 13, 1939

Dr. Robert A. Kehoe
Medical School
University of Cincinnati
Cincinnati, Ohio

Dear Doctor:

You no doubt are aware of the fact that the steel industry today is adding lead to steels which are being manufactured for machining purposes. The lead inclusions aid in some way to allow great speeds in automatic cutting machinery and in some rare cases the speed has been increased as much as four times.

You also are aware that the lead does not alloy with iron and the lead, therefore, must exist in the ingot as inclusions and must be added to the ingot at the time of teeming.

We are endeavoring to obtain the percentage of lead between .2% and .3% and our efficiency at present is about 50%, so you will see that half the lead added is lost. A portion of this loss is due to lead which is not held by the steel but drops through the molden steel and rests on the stool which supports the mold. The remainder is given off to the atmosphere either in the form of Oxide or as metallic lead. The small particles above mentioned are hazardous to the men working in the Open Hearth and especially those directly connected with the teeming of the heat of steel, and in as much as your name has been mentioned to me this morning as an authority on lead poisoning by Mr. W.W. Shropshire of the International Lead Refinery in East Chicago, Indiana, I have taken the liberty to write you in an endeavor to get some information on the possibility of lead poisoning occurring from swallowing or breathing the dusts occurring in this operation.

To date we have been able to take only a few samples of atmosphere at the time of teeming but our results show lead to exist in hazardous quantities. However, since the making of these ingots is rather spasmodic and the pouring time for, say, 10 ingots is a maximum of 20 minutes, we are wondering if such a condition could actually produce plumbism to any degree.

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It probably would be interesting to you to know something about the frequency of contact with this operation. Recently our Open Hearth operated for 17 days without adding lead to any steel. Then three heats were made in two days. Ten ingots from each heat of 40 ingots were teemed and lead added. The same group of men handled two heats and another group of men handled one heat. The maximum time of pouring 10 ingots was 17 minutes and the results of our atmospheric tests in all three cases showed 00029 grams of lead per cubic foot of air, these samples being taken very close to the group of men at the ladle.

The results which have been given above are beyond the threshold. However, we have been of the opinion that while this much lead may have been taken into the nostrils or the mouth very little reached the lungs or stomach and in as much as a workman may be subjected to such conditions, say, once per week, he probably has not been subjected to a hazardous condition.

Medical examinations of men connected with this type of operation will be started in a very few days. Any information you may feel free to let us have will be greatly appreciated.

Very truly yours,

H. McComb
Chief Chemist

HMcC/ln

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